

seen in the paralysis of the quadriceps femora. In order not to let the knee sink down during walking, the patient places his knee, the center of equilibrium, back of the knee, and when he steps on that foot and over extends that knee on account of the paralysed extensor, a condition called by him steppage is characterized by an equinus position of the foot with dependent toes, and is due to a paralysis of the muscles on the anterior side of the foot, supplied by the peduncus nerve. In order to prevent the affected toes from dragging on walking, the foot is lifted abnormally high up. Often it is not placed down at once, but is first upon the heel and then the ball of the toes, so that a double sound results. The writer develops his ideas, in short, on the asynergic, non co-ordinated forms of gait. He emphasizes that the cerebral forms, varieties of these ataxies, are essentially different from the spinal. In the former the gait is inco-ordinate as the equilibrium is lost, while in the latter the equilibrium is difficult, as the gait is inco-ordinate.—*Nordiskt Medicinskt Arkiv*, No. 1, 1893.

F. H. P.

PHYSIOLOGICAL.

The Functions of the Sympathetic Ganglia.—

A reply to a criticism by Dr. F. Vas (Hale White, M.D., Brain, Winter, number, 1892).

In the September number of the JOURNAL OF NERVOUS AND MENTAL DISEASES, Dr. Donaldson referred in a critical way to an article on the Structure of the Chromatin in the Sympathetic Ganglion Cell. The author of the article, Dr. F. Vas, considered that the results of his investigation were opposite and contrary to the views which had been advanced by other investigators, and one of them Dr. Hale White has replied to some of his criticisms. White believes that some of the sympathetic ganglia, especially the superior cervical ganglion, in adult men are functionless organs and are the remnants of structures having important functions in the lower animals. He bases his conclusion on the results of a large number of examinations made on man and the lower animals. For instance, the superior cervical ganglia taken from forty-nine adult human beings were examined. Of these only one showed entirely normal nerve cells. In the others the cells were more or less shrunken, non-nucleated, granular and irregular in outline.

Vas objects that these conditions of the cells should

not be taken as evidence that they are a degenerate type of cell, and says that White allows that sometimes nerve cells which show all these changes are nevertheless functionally active. White admits that he cannot entirely interpret the meaning of the pigmentation, but decides that cells showing the changes previously mentioned, can be functionally active. He contends that when but a few cells in any ganglion show these changes, the great portion of the ganglion is normal, the only functionless part of it being the few degenerate cells. The activity of the ganglion is only beginning to die out. White, likewise, denies the statement attributed to him by Vas, that the sympathetic ganglia are embryonal remains. He merely maintains that those ganglia which in adult man show degenerate cells, for example, the superior cervical, are atrophied degenerate organs. In reply to a second question by Vas, how is it possible that, if in the human adult the superior cervical ganglia have lost their function, those of the thorax in organic connection with them have maintained theirs, the fact is advanced that the ganglia in these two locations subserve entirely different functions, and there is, therefore, no valid reason why one should not degenerate without the companionship of the other. The fact that ganglia do not show evidences of fatty degeneration, White holds to mean nothing, as a number of degenerate organs in man show no fatty degeneration. Nor does he consider the shrinking of the cells in the degenerate ganglia to be due to the method of preparation or dependent on after-sclerosis of blood vessels. If it were so, this artificial shrinking should be as manifest in one ganglion as in another. White emphasizes that he does not consider mere pigmentation as evidence of degeneration, an imputation that Vas attributes to him. Regarding the statement made by Vas, that if the nerve cells of the superior cervical ganglion in man are atrophic degenerate structures, one ought by cutting the nerves either side of the ganglion, to be able, in rabbits, to cause the ganglion cells to have a similar appearance to that which White describes as the atrophic condition in man. White maintains that the tenets of such an argument are entirely illogical, and that it would be as reasonable to expect that the tail of a long-tailed monkey should shrink to the size of the cocyx of an adult man in a few days after the nerves going to the tail had been severed. In conclusion, White maintains the views that he has previously advanced, as to the meaning of the sympathetic ganglia in adult man. J. C.